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COUNTY HEALTH FACTS No. 04-02

County Health Facts is a series of reports using California Health Interview Survey data to describe the health status of California's counties.

HIGHLIGHTS:

About 6.9 percent of adults in California, more than 1.7 million people, had heart disease in 2001.

About 60.6 percent of Californians with heart disease took medication to control their disease.

The Mendocino/Lake County region had the highest proportion of residents with heart disease, 12.4 percent.

Marin County had the lowest proportion of residents with heart disease, 5.2 percent.

Prevalence of Heart Disease in California Counties, 2001

By Laura E. Lund, M.A.¹ and Nan Pheatt, M.P.H.²

"Heart disease" refers to a variety of conditions including coronary artery disease, heart attack, heart failure, angina, and congenital heart defects. It is more common in men over age 65 and in women over age 55. Smoking, being overweight or physically inactive, and having high cholesterol, high blood pressure, or diabetes can increase the chances of having heart disease. Although heart disease is the leading cause of death in both men and women in California,³ many types of heart disease can be prevented by a low-fat diet, exercise, and avoidance of tobacco. Once heart disease becomes established, progression can often be slowed or halted through the use of appropriate medications.

This report presents data on heart disease in adults in California's counties. All data come from the California Health Interview Survey (CHIS 2001). (See "Methods" on page three for a description of the survey and analytic methods used in this report.) CHIS 2001 defined persons as having heart disease if a physician ever told them that they had any kind of heart disease.⁴ This definition may result in an undercount of the total number of persons with heart disease, because some persons may have the disease and not know it, or they may not recognize their diagnosis as a form of heart disease.

Heart Disease Prevalence

Crude rates: More than 1.7 million Californians, or about 6.9 percent of all adults, had heart disease in 2001 (Table 1, page 4). There was considerable variation in rates across counties, from a low of 5.2 percent of adults in Marin County, to a high of 12.4 percent in the Mendocino/Lake County region.

Age-adjusted rates: After adjusting for differences in county age distributions, Marin County continued to have the lowest heart disease rate, 4.6 percent (Table 1), while Madera County had the highest rate, 10.1 percent. Comparing county rates with the overall California rate,

¹ California Department of Health Services, Center for Health Statistics

² California Department of Health Services, California Heart Disease and Stroke Prevention Program

³ State of California, Department of Health Services. *Vital Statistics of California, 2000*. November 2003. Sacramento, California.

⁴ The CHIS 2001 wording is: "Has a doctor ever told you that you have any kind of heart disease?"

two counties (Marin and San Francisco) had heart disease rates significantly below California's age-adjusted rate of 7.2 percent. One region and two counties (Mendocino/Lake, Riverside, and Madera) had rates significantly higher than the State rate.

Controlling Heart Disease with Medication

People who cannot control their heart disease with lifestyle changes need to take prescription medications. CHIS asked persons with heart disease whether they took any medications to control their disease. About 60.6 percent of Californians with heart disease took medications for this purpose (Table 2, page 5). Santa Cruz County had the lowest proportion of heart disease patients taking medication, 33.2 percent, and was also the only county with a medication rate that was significantly lower than the State rate. People with heart disease in Butte County were the most likely to take medications, 75.8 percent. Butte was the only county with a medication rate that was significantly higher than the State rate. Low medication rates may indicate poor access to medical care, or they may indicate poor compliance with physicians' orders.

Summary

Heart disease is the leading cause of death in California; in 2001 it claimed more than 69,000 lives in our state. In addition, heart disease is a major cause of chronic illness; more than 1.7 million Californians, or 6.9 percent of all adults, have been diagnosed with the disease. Diagnosed heart disease rates range from 5.2 percent in Marin County to 12.4 percent in Mendocino/Lake County. Heart disease is likely to become even more common due to the aging of the population and the increase in the prevalence of diabetes.

Prevention is the key to reducing death and disability due to heart disease. According to the American Heart Association,⁵ people can reduce their risk of developing heart disease by:

- not smoking
- exercising (30 minutes of moderate-intensity exercise on most days of the week)
- controlling blood pressure through diet and exercise or, if necessary, through the use of prescribed medications (for most people blood pressure should be < 140/90 mm Hg)
- eating properly (eat a variety of fruits, vegetables, grains, low-fat dairy products, fish, legumes, and lean meats)
- maintaining a healthy weight (Body Mass Index [BMI] should be 18.5-24.9 kg/m²; if BMI ≥ 25 kg/m², waist circumference in men should be ≤ 40 inches and ≤ 35 inches in women)
- managing diabetes (fasting blood sugar should be < 110 mg/dL or HbA1c < 7%)
- keeping cholesterol levels within healthy limits (cholesterol goals vary with the number of co-existing risk factors; individuals should check with their physician)
- taking a daily low-dose aspirin, if advised to do so by a physician

People who already have heart disease can reduce their risk of progression and early death by taking their medication as prescribed and by making the lifestyle modifications recommended by their health care team.

For more information about heart disease prevention in California, contact the California Heart Disease and Stroke Prevention Program at (916) 552-9870.

⁵ Guidelines for Primary Prevention of Cardiovascular Disease and Stroke: 2002 Update. *Circulation* 2002;106:388-391

Methods

Data: CHIS 2001 is a population-based household telephone survey, representative of the non-institutionalized adult population of California, with more than 55,000 Californians participating. In addition to statewide data, CHIS 2001 provides representative samples for California counties with populations greater than 100,000. For smaller counties, CHIS provides representative data estimates for contiguous county groups, referred to as “regions” in this report. Respondents to the survey were randomly selected California residents aged 18 and older living in households with telephones. CHIS is a collaboration of the California Department of Health Services, the University of California at Los Angeles Center for Health Policy Research, and the Public Health Institute. More information on the CHIS sample is available at <http://www.chis.ucla.edu>.

Analysis: In this report, both crude rates and age-adjusted rates are provided as measures of heart disease prevalence. Crude rates reflect the actual number of persons with heart disease in a county. However, since heart disease is much more common among older persons than in young adults, counties with a larger proportion of older persons will tend to have higher crude rates of heart disease than counties with fewer older persons. Age-adjustment statistically controls for these differences in county age structures. Therefore, age-adjusted rates rather than crude rates should be used for comparing prevalence differences between counties or between a county and the State. Age-adjusted rates have not been provided for medication use, since medication use should not be affected by the age distribution of the county. Examining the relationship between age and medication use is beyond the scope of this report. Age-adjustment was by the direct method, using the 2000 California population as the standard. Further details on the methods used to calculate crude and age-adjusted rates are available from the author.

The 95 percent confidence intervals (CIs) are presented for each rate. Because CHIS data are collected through a sampling method, there may be some random error in the rate estimate. The CIs represent the range of values likely to contain the “true” population rate 95 percent of the time. In this report, rates are considered to be significantly different from each other when their confidence intervals do not overlap. Cases with missing information for heart disease were excluded from this analysis.

Limitations: The CHIS data are self-reported by respondents to the survey, and may be subject to error, such as respondent failure to recall information about existing health conditions. Only persons living in households with telephones were included in the survey. Participation in CHIS is voluntary; persons who refused to participate may be different than those who were interviewed. Details on response rates, respondent characteristics, and other survey information can be obtained at <http://www.chis.ucla.edu>.

For more information on CHIS 2001 contact: Laura E. Lund, CHIS Coordinator, California Department of Health Services, Office of Health Information and Research, MS 5103, PO Box 997410, Sacramento, CA 95899-7410.

TABLE 1
HEART DISEASE PREVALENCE AMONG ADULTS IN CALIFORNIA, BY COUNTY OR REGION, 2001

County of residence	Age-adjusted rate ¹	95% Confidence Interval		Crude rate ¹	95% Confidence Interval		Estimated N ²
		Lower	Upper		Lower	Upper	
Marin*	4.6	3.3	5.9	5.2	3.6	6.8	10,300
San Francisco	5.7	4.6	6.7	5.5	4.4	6.7	35,200
Stanislaus	5.8	4.3	7.4	5.7	4.0	7.3	18,100
Monterey/San Benito	6.5	4.8	8.1	6.3	4.4	8.3	20,100
San Diego	6.5	5.6	7.4	6.3	5.4	7.2	134,000
San Joaquin	6.5	5.2	7.9	6.5	5.0	8.0	26,300
Placer	6.6	5.0	8.1	7.5	5.6	9.4	13,500
San Luis Obispo	6.6	4.9	8.3	7.1	5.2	9.0	14,100
Butte	6.6	5.1	8.1	7.8	6.0	9.7	12,300
San Mateo	6.8	5.2	8.4	7.1	5.1	9.2	40,200
Santa Clara	6.8	5.5	8.1	6.1	4.9	7.4	79,800
Santa Barbara	6.8	5.2	8.5	7.0	5.2	8.7	21,200
Yolo	6.8	5.2	8.5	5.5	3.9	7.2	7,000
Orange	6.9	5.9	7.9	6.3	5.3	7.2	126,800
Sonoma	6.9	5.2	8.7	7.3	5.3	9.3	25,400
Los Angeles	7.0	6.5	7.4	6.4	5.9	6.9	444,700
Alameda	7.0	5.8	8.2	6.5	5.0	7.9	70,000
Santa Cruz	7.0	5.2	8.8	6.5	4.8	8.3	12,700
Contra Costa	7.1	5.4	8.8	7.3	5.5	9.0	50,500
California	7.2	7.0	7.4	6.9	6.7	7.2	1,726,400
Humboldt/Del Norte	7.3	5.6	8.9	7.7	5.8	9.6	9,400
Solano	7.3	6.0	8.6	6.7	5.4	8.1	19,200
Shasta	7.3	5.8	8.8	9.2	7.2	11.2	12,000
Nevada/Plumas/Sierra	7.4	5.8	9.1	10.1	7.7	12.5	9,700
El Dorado	7.6	5.8	9.3	8.8	6.0	11.6	10,800
Ventura	7.6	5.9	9.3	7.4	5.6	9.2	40,300
Napa	7.8	6.2	9.4	9.1	7.1	11.1	8,900
San Bernardino	7.8	6.5	9.2	7.1	5.7	8.4	82,400
Sacramento	8.1	6.7	9.6	8.1	6.5	9.7	70,500
Imperial	8.3	6.3	10.3	8.2	5.9	10.4	8,600
Tulare	8.3	6.5	10.1	7.8	6.0	9.7	19,900
Siskiyou/Lassen/Trinity/Modoc	8.3	6.5	10.2	10.4	8.3	12.6	8,600
Kings	8.4	6.5	10.2	7.4	5.6	9.1	6,500
Tuolumne/ Calaveras/ Amador/ Inyo/ Mariposa/ Mono/ Alpine	8.7	6.8	10.5	11.0	8.6	13.5	15,800
Fresno	8.8	7.1	10.4	8.2	6.4	9.9	44,900
Tehama/Glenn/Colusa	8.9	7.1	10.6	10.4	8.3	12.5	8,100
Merced	8.9	7.1	10.7	8.4	6.5	10.4	12,000
Kern	8.9	7.3	10.6	8.4	6.7	10.1	39,000
Riverside*	9.2	7.6	10.8	9.8	8.0	11.5	107,800
Sutter/Yuba*	9.3	7.3	11.2	9.5	7.4	11.7	9,700
Mendocino/Lake*	9.9	7.8	11.9	12.4	9.9	14.9	14,200
Madera*	10.1	8.1	12.1	10.4	8.2	12.6	9,400

¹Rate is per 100 county or State population.

²Estimated by multiplying the crude rate times the county or State population, rounded to the nearest hundred.

Sources: University of California at Los Angeles Center for Health Policy Research and State of California, Department of Health Services. 2001 California Health Interview Survey.
State of California, Department of Finance. Race/Ethnic Population with Age and Sex Detail, 2000.

Prepared by: Department of Health Services, Center for Health Statistics.

*Age-adjusted rate is significantly different than the State rate.

TABLE 2
CALIFORNIA ADULTS WITH HEART DISEASE TAKING MEDICATIONS TO CONTROL THEIR HEART DISEASE,
BY COUNTY OR REGION, 2001

County of residence	Medication Rate ¹	95% Confidence Interval		Estimated N ²
		Lower	Upper	
Santa Cruz	33.2	20.5	45.8	4,200
Stanislaus	44.3	29.2	59.3	8,000
Yolo	49.1	35.5	62.6	3,400
San Luis Obispo	51.7	37.7	65.6	7,300
San Mateo	52.1	37.0	67.1	20,900
Imperial	54.4	39.9	68.8	4,700
San Francisco	54.4	43.6	65.3	19,200
Contra Costa	54.6	41.7	67.5	27,200
Kern	55.2	44.8	65.6	21,500
Monterey/San Benito	55.6	39.8	71.3	11,200
San Joaquin	56.4	44.5	68.4	14,900
Humboldt/Del Norte	57.1	44.2	70.0	5,300
Merced	57.3	44.8	69.7	6,800
Marin	58.4	42.5	74.3	5,900
Santa Barbara	58.7	45.2	72.2	12,100
Santa Clara	59.1	48.4	69.9	45,800
Madera	59.2	48.3	70.2	5,500
Ventura	59.2	46.2	72.2	23,900
Napa	59.4	48.0	70.7	5,200
Sutter/Yuba	60.1	48.4	71.8	5,800
El Dorado	60.1	43.5	76.8	6,500
Los Angeles	60.3	56.5	64.2	265,900
California	60.6	58.7	62.6	1,035,800
Sonoma	60.8	46.8	74.8	15,200
Sacramento	61.3	50.9	71.8	43,300
Fresno	62.1	51.6	72.6	27,900
San Diego	62.4	55.2	69.6	81,600
Orange	62.6	54.5	70.6	79,100
Tuolumne/ Calaveras/ Amador/ Inyo/ Mariposa/ Mono/ Alpine	62.9	51.9	73.9	9,800
San Bernardino	63.4	53.5	73.2	52,000
Nevada/Plumas/Sierra	64.2	51.7	76.7	6,200
Mendocino/Lake	64.2	54.2	74.1	9,100
Riverside	64.3	55.0	73.5	66,900
Kings	64.6	52.9	76.4	4,100
Shasta	65.4	54.7	76.1	7,800
Solano	65.6	55.9	75.4	12,600
Tehama/Glenn/Colusa	66.1	56.1	76.1	5,300
Tulare	67.4	56.0	78.9	13,400
Siskiyou/Lassen/Trinity/Modoc	68.3	58.2	78.5	5,900
Alameda	69.3	59.2	79.5	47,600
Placer	70.4	58.8	82.0	9,400
Butte	75.8	65.1	86.4	9,300

¹This is a crude rate per 100 persons with heart disease.

²The number of persons taking heart disease medication to control their heart disease was calculated by estimating the proportion of the population with heart disease **and** taking medication, then multiplying that proportion times the county or State population, rounding to the nearest hundred.

Sources: University of California at Los Angeles Center for Health Policy Research and State of California, Department of Health Services. 2001 California Health Interview Survey. State of California, Department of Finance. Race/Ethnic Population with Age and Sex Detail, 2000. Prepared by: Department of Health Services, Center for Health Statistics.